

200° Tow Angle Arc Position Sensor

QuantumTMR Non-Contacting 200° Arc Position Sensor

Introducing the KZ-050-01, a non-contact, robust 200° Arc Position Sensor specifically designed to measure the drift angle of a tow-boat attached to an America's Cup racing yacht.

Leveraging the latest advancements of Tunnel Magnetoresistance sensing, Reventec's state-of-the-art Quantum TMR technology offers superior accuracy compared to Hall Effect sensors and provides reliable readings across magnetic field strength fluctuations. The arc position sensor is a solid-state, lightweight measurement device with integrated CPU processing for a ratiometric analogue VDC output. Benefitting from real-time measurement with a rapid update rate of 5kHz, the device enables engineers to extract detailed data for analysis.



Wide 200° arc measurement range.



Hard anodised aluminium construction rated IP67.

Key Features

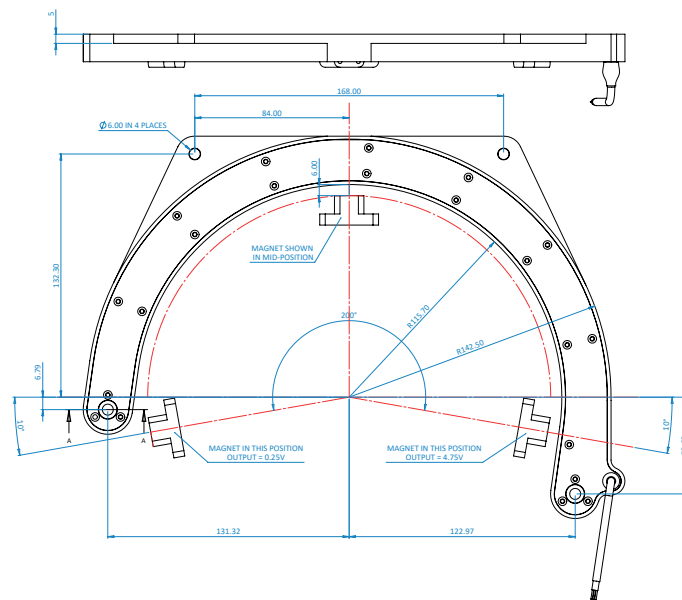
- Solid-state, non-contact alternative to potentiometers
- +/- 100 degrees of arc measurement range
- Rapid response rate of 5kHz
- Extremely accurate; ±0.5% of reading
- IP67 rated for harsh environments
- 12bit Analogue output resolution
- Programmable to different arc sensing ranges
- Accurate position sensing over a wide temperature range -40°C to +125°C

Benefits

- Avoids wear and degradation as seen in potentiometers.
- Capable of measuring through up to 40mm* of non-ferrous material.
- Provides real-time measurement of components movement.
- Full customisation favailable.

*Subject to target

Example Sensor Dimensions



Measurement

Type	Angular Displacement
Typical Accuracy	±0.5% of reading
Measurement Rate	5kHz
Measurement Range	±100 degrees

Electrical

Supply Voltage	+6 VDC to +31 VDC
Typical Operating Current	nom 80mA at +24 VDC
Overvoltage Protection	+45 VDC continuous
Reverse Polarity Protection	-45 VDC continuous

Analogue Output

Type	Voltage
Typical Output Range	0-5 VDC 0-10 VDC only on 12V supply options
Typical Output Calibration	+0.25VDC at 0° to +4.75 VDC at 200° (Configurable)
Resolution	12 bit
Stability	±0.4% over full temperature range

Dimensions

Sensor	Custom designs available. Contact us for standard drawings or step files.
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Environmental

Environmental Protection	IP67
Vibration	Designed to meet: 10Hz to 2000Hz sine sweep @10G (24hrs per each axis)
Shock	Designed to meet: 50G half sine wave for 11ms, 10 times each axis
Operating Temperature Range	-40°C to +125°C

Mechanical

Construction Material	AL 6082T6 (Hard Anodised)
Mass	From 520g

Wiring Specification

Harness	Flying lead Custom on request
Sleeve Elastomer	Typically DR-25 or RW-200E
Boot Elastomer	Viton FEP
Wire Type	1m, 5 core, Type 55, 24 AWG

Wiring Definition

Description	Wire Colour
Supply (+)	● Red
Ground (GND)	● Black
Signal (0.25-4.75V)	● Yellow
Tx Comms (Configuration only)	○ White
Rx Comms (Configuration only)	● Green

Accessories

USB Calibration Cable	P/N: 07-003-01
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Configuration Interface

Type	RS-232 via FTDI USB cable. See Accessories.
GUI	Available on request

Specifications may be subject to change without prior notice.